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EXAMINER

TANG, SON M

ART UNIT PAPER NUMBER

2632

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/091,852

Applicant(s)

CRANE ET AL.

CA

Examiner

Son M Tang

Art Unit

2632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22, 24-31, 33-52 and 54-59 is/are rejected.
- 7) ☒ Claim(s) 23, 32 and 53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: nowhere in an original spec. disclose “a sensor window” of claim 9.

### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “sensor window” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claimed “a sensor window providing a *viewpath* for the sensor unit”, it is unclear that “sensor window” is for person to view the sensor or for sensor to view the outside.

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

6. Claims 29-31 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumura et al. [US 5,111,201; Matsumura].

Regarding to claim 29: Matsumura discloses a monitoring system, comprising:

-a plurality of monitoring devices [see Fig. 2] positioned within chamber cavities (met by tanks T1, T2) for measuring depth (level) in the manhole cavities [as cited in col. 61-68]; and a remote monitoring station [OC, RR see Fig. 1] configured to communication wirelessly with said monitoring devices (via transmitter RT 17), said remote monitoring station receiving depth (level) measurements at periodic intervals (intermittently) from said monitoring devices and durably storing said depth (level) measurements in memory storage 15 [as cited in col. 4, lines 3-14].

Regarding to claim 30: Matsumura further discloses that monitoring devices 10 measure depth at a programmed sample interval (timing of microcomputer activation, see Fig. 5), and transmit the depth measurements at a programmed transmission interval longer than said sample interval (transmission liming when level lowering) [as see in Fig. 5, col. 4, lines 1-19].

Regarding to claim 31: Matsumura further discloses that monitoring devices are configured to compare depth measurements with a programmed alarm value, if said alarm value is exceeded send a warning signal immediately to the remote monitoring station [as shown in Fig. 7, col. 6, lines 15-19].

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Regarding to claim 37: Matsumura further discloses a flowmeter [F] and transmits data from flowmeter to remote monitoring station at periodic intervals [see Fig. 2].

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 33 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Matsumura et al.** [US. 5,111,201; Matsumura].

Regarding to claim 58: Matsumura discloses a self-contained monitoring apparatus [Fig. 8], comprising:

-a plurality of monitoring devices [see Fig. 2] positioned within chamber cavities (met by tanks T1, T2) for measuring depth (level) in the manhole cavities [as cited in col. 61-68]; and a remote monitoring station [OC, RR see Fig. 1] is configured to communicate wirelessly with said monitoring devices (via transmitter RT 17), said remote monitoring station receiving depth (level) measurements at periodic intervals (intermittently) from said monitoring devices and durably storing said depth (level) measurements in memory storage 15 [as cited in col. 4, lines 3-14], Matsumura does not specifically disclose that housing is a moisture-proof, non-corrosive material. However, the monitoring devices use as for outdoor which locates near liquid (moisture), therefore it would have been obvious of one having ordinary skill in the art at the

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time the invention was made, to use non-corrosive material for the housing to protect and prevent any damage to the electrical device.

Regarding to claim 33: Matsumura discloses the monitoring devices comprise a particular setting bandwidth and particular setting frequency [26, 27] for distinguishing transmissions between monitoring devices at [T1-T3] and the remote monitoring station [as shown in Fig. 3, col. 3, lines 44-58], Matsumura does not specifically assigned unique identification numbers for each monitoring device. Since, each unique identification number is made of a particular transmission frequency, therefore it would have been obvious of one having ordinary skill in the art to recognize that particular setting frequency is an assigned unique identification number for distinguishing transmissions of monitoring devices to monitoring station.

9. Claims **1-2, 12-13, 20-22, 28, 34, 40, 51-52 and 59** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Matsumura et al.** in view of **Otto et al.** [US 6,539,794; Otto] and further in view of **Lau et al.** [US 5,565,783; Lau].

Regarding to claim 1: Matsumura discloses a monitoring apparatus comprising:

- a housing which met by the casing 70 [Fig. 8-9];
- a transmitter 17 (RT) located within said housing [as cited in Fig. 2-3 and 9];
- a processor [10] located within the housing, said processor connected to the transceiver (module means) and configured to periodically transmit the level (depth) measurements to a remote monitoring station which met by a radio receiver (RR) in an office [as shown in Fig. 1 and col. 2, lines 61-68 to col. 3, lines 1-5].

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-a sensor unit [20] which configured to obtain depth (level) measurements at periodic intervals [as cited in Fig. 2 and col. 3, lines 65-68 to col. 4, lines 1-8].

Matsumura fails to disclose that sensor unit is located in the housing. **Otto** teaches a level measurement system comprising a level sensor [22] located in the housing [20] as shown in Fig. 1 and col. 5, lines 49-68. Since both systems use for depth measurement, Matsumura uses float sensor to measure level, float sensor type designs to contact material, Otto uses sonic sensor which designs for transmitting and receiving waves and can be mounted in the housing, therefore it would have been obvious of one having ordinary skill in the art at the time the invention was made to employ sonic sensor as suggested by Otto, which mounted within the housing as alternative sensor for depth measurement.

As stated by Matsumura above that transmitter 17 uses to communicate with central monitor, Matsumura does not specifically disclose that communication unit 17 is a transceiver (transmits/receives).

**Lau** teaches monitoring system which comprising a housing [4] includes transceiver [3] as cited in Fig. 1 and col. 5, lines 26-36. Since, both transmitter and transceiver use for communication purpose, transceiver is known of transmits/receives information to/from remote station, therefore it would have been obvious of one having ordinary skill in the art at the time the invention was made to recognize that, employ a transceiver as suggested by Lau into the combination above for the benefit that monitoring station is being able to manipulate the remote monitoring device without personal intervention.

Regarding to claims 2 and 34: Matsumura and Otto disclose all the limitation as claimed above, Otto further discloses that sensor unit is an ultrasonic sensor [as cited in col. 6, line 20].

Regarding to claim 12: Matsumura and the combination disclose all the limitation as described above, they are not specifically disclose transceiver comprises a directional antenna. Since, directional antenna is known in the art which use to provide one direction signal more energy than other direction, therefore it is obvious of one having ordinary skill in the art at the time the invention was made to recognize that directional antenna is used based upon the specification requirement at the preferred environment.

Regarding to claim 13: Matsumura further discloses a memory [15] located within the housing for storing level (depth) measurements from said sensor, and periodically transmit to remote monitoring station [as shown in Fig. 2, col. 4, lines 3-14].

Regarding to claims 20-22, 40 and 59: Matsumura and the combination disclose all the limitation as claimed above, Lau further teaches that remote station is being able to reprogram the monitoring device's processor [as shown in Fig. 4A-4B, 6 and col. 7, lines 5-24, col. 8, lines 44-51], Lau does not specifically disclose that reprogram the time interval for transmission and measurement data. It is known in electrical art that processor can be reprogrammed its processing features, therefore one having ordinary skill in the art would have found it obvious for microprocessor being able to reprogram the device's processing, such as time intervals for transmission/measurement data.

Regarding to claim 28: Matsumura and the combination disclose all the limitation as claimed above, they fail to specify that housing is formed of non-corrosive material. Since,



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the device is an outdoor device and locates near water, therefore one having ordinary skill in the art would have found it obvious to use non-corrosive material for the housing, for preventing damage to the device.

Regarding to claims 51-52: The claimed method steps are interpreted and rejected as rejection stated above.

10. Claims 3, 14-16, 19, 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Matsumura** in view of **Otto** and **Lau** in claim 1 above, and further in view of **Marsh et al.** [US 5,811,688, Marsh].

Regarding to claim 3: Matsumura and the combination above disclose the instant invention except for monitoring sensor is an infrared sensor. Marsh teaches a level monitor system which comprises level sensor [24] informed of either microwave, acoustic or laser energy types (as cited in col. 5, lines 1-25). Since, one or more suitable energy source can be used for sensing as an alternative sensor, therefore it is obvious of one having ordinary skill in the art at the time the invention was made to employ a known infrared sensor in the system of combination above, based upon the preferred environment of a monitoring area (such as long range or short range, etc.).

Regarding to claim 14 : Matsumura and the combination disclose all the limitations as described in claim 1 above, they fail to specify that the monitoring apparatus comprising a plurality of input/output ports.

Marsh teaches level device which comprises a plurality of input/output ports (which met by the inputs of depth sensor 24 at depth signal input 34 and velocity sensor 20 at velocity signal

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32, as shown in Fig. 3.). Since, input ports use for receiving signal from other sources, it is obvious of one having ordinary skill in the art to recognize that, to have plurality input ports in the system as suggested by Marsh et al. so that system able to collect more input data from external sources.

Regarding to claims 15-16 : Matsumura and the combination disclose all the limitation claimed above, Marsh further teaches input ports are configured to receive input signals from one or more peripheral monitoring devices (24, 20) (flowmeter) connectable to said monitoring apparatus 22, and processor 36 conveying the input signals of monitoring devices [as shown in Fig. 2-3].

Regarding to claim 19 : Matsumura and the combination disclose all the claimed limitation in claim 14 above, they are not specifically state that processor is programmable via one of said input/output ports, it is known in electrical art that processor is a programmable device, therefore one having ordinary skill in the art would have found it obvious that at least one input/output port should be available in order to receive information program from other source.

Regarding to claims 49-50: The claimed method steps are interpreted and rejected as rejection stated above.

11. Claims 17-18, 24-25, 27, 38-39 and 54-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Matsumura, Otto and Lau** in view of **Marsh** in claim 15 above, and further in view of **Sakaguchi** [JP 358017934A; Sakaguchi].

Regarding to claims 17-18 and 38-39: Matsumura and the combination disclose the instant invention except for a toxic gas detector. Sakaguchi teaches a control system of manhole

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comprises a peripheral monitoring device of toxic gas detector [8] located inside of a manhole and the peripheral monitoring is a lab-on-a-chip (N-type semi-conductor gas sensor) as shown in [Fig. 1, page 3, lines 11-14]. Since, toxic gas monitoring in manhole is known in the art, so one that wants to enter manhole for maintenance would feel safe, therefore it would have been obvious of one having ordinary skill in the art at the time the invention was made to employ a gas detector in the manhole as taught by Sakaguchi, into the combination above, for the benefit of increasing safety.

Regarding to claim 24: Matsumura and the combination disclose all the limitation in claim 1 above, they fail to specify a second sensor unit, for detecting the movement (tamper) of the monitoring apparatus in the manhole, Sakaguchi teaches a manhole management system comprising a second sensor (12) for detecting tamper of manhole's cover 6 (if it moved from its normal stationary position) [as cited in paragraph (4) page 4 of specification]. It would have been obvious of one having ordinary skill in the art at the time of the claimed invention, to have a tamper sensor as suggested by Sakaguchi into the system of the combination above, for better security of monitoring apparatus in the manhole.

Regarding to claim 25: Matsumura and the combination disclose all the limitation in claim 24 above, Sakaguchi teaches a second sensor 12 (tamper) as described above, Sakaguchi does not specifically teaches second sensor 12 is a pressure switch, it is common for pressure switch is used for detecting open/close movement. Therefore, it is obvious of one having ordinary skill in the art at the time the invention was made, to use a pressure switch to detect manhole cover movement as suggested by Sakaguchi, into the system of combination above for enhancing sensitivity.

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Regarding to claim 27: Matsumura and the combination disclose all the limitation in claim 24 above, Sakaguchi further teaches wherein manhole cover movement detected signal configured to transmit to the remote monitoring system [cited in page 1 of specification].

Regarding to claims 54-57: The claimed method steps are interpreted and rejected as rejection stated above.

12. Claims 4-5, 7, 43-44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Matsumura** in view of **Otto**, and **Lau** in claim 1 above, and further in view of **George et al.** [US 4,119,382; George].

Regarding to claim 4: Matsumura and the combination disclose all the limitation in above, except for disclose a plurality of legs attached to said housing which configured to secure said housing to an interior surface of a manhole at a plurality of non-adjacent locations on said interior surface. George et al. teach a self leveling construction alignment laser device in a manhole M which comprising, a plurality legs [13, 12, 3-5, 4b and 5b] attached to the housing [2] they configured to secure housing [2] in the interior surface of a manhole M [as shown in Fig. 1-3 and 14, and col. 5, lines 35-44]. It is common to use legs method for mounting device on the vertical surface such as wall or manhole, because they can be positioned at any level, therefore, it would have been obvious of one having ordinary skill in the art at the time the invention was made to use legs as taught by George into the system of the combination above, for the purpose of easy to mount device on the vertical wall surface and be able to mount it at any level and area in size.

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Regarding to claims 5, 7: George further teaches that leg 13 is adjustable or compressible in length by a rotatable screw member [13a] to facilitate securing the housing to the interior surface of the manhole [as shown in Fig. 3, and col. 5, lines 35-44].

Regarding to claims 43-44, 46: The claimed method steps are interpreted and rejected as rejection stated above.

13. Claims 6, 8 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Matsumura** in view of **Otto, Lau and George** in claim 5 above, and further in view of **Geltz** [US 5,330,061; Geltz].

Regarding to claim 6: Matsumura and the combination disclose all the limitation as described above, they fail to disclose that wherein the leg is a flexible material.

Geltz teaches a spinning shower rod mechanism which made of a plastic material [shown in Fig. 1, col. 3, lines 46-47]. Since, plastic material is soft enough for bending or compressing, therefore, it would have been obvious of one having ordinary skill in the art at the time the invention was made to recognize that employ flexible material such as plastic as taught by Geltz, into the above combination, for preventing over tightened.

Regarding to claim 8: Matsumura and the combination above disclose all the limitation as described above, they fail to disclose that wherein the legs comprises, an adhesive foot to facilitate securing on surface. Geltz teaches a spinning shower rod mechanism which comprising, a pad (22) which provides a secure pressure contact with the surface [as shown in Fig. 1 and col. 3, lines 1-3]. Since, the pad can provide an application of continuous pressure by one body on another, it is analogy of adhesive function, therefore, it would have been obvious of

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one having ordinary skill in the art at the time the invention was made to recognize that the secure pressure pad as taught by Geltz, can be used in the combination above, for the purpose of better secure on wall surface.

Regarding to claim 45: The claimed method steps are interpreted and rejected as rejection stated above.

14. Claims 10-12, 35-36 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Matsumura** in view of **Otto** and **Lau** in claim 1 above, and further in view of **Johnson et al.** [US 2002/0041238; Johnson].

Regarding to claims 10-12 and 35-36: Matsumura and the combination disclose all the limitation above, they fail to specify that wherein the transceiver communication uses a two-way and with a standard Internet protocol format.

Johnson teaches a remote monitoring system comprises, a two-way pager communication technique, and a standard Internet protocol format as cited in Fig. 1, paragraphs 0038,0039,0044 and 0051 to 0054. Since, the two-way pager and Internet protocol methods are known in wireless communication, convenience and sufficient, it would have been obvious of one having ordinary skill in the art at the time the invention was made, to employ these known methods as suggested by Johnson into the combination above, in doing so, user base on or due to factors such as current cost, promotions user preference application environment and/or availability of parts at the time of implement.

Regarding to claims 47-48: The claimed method steps are interpreted and rejected as rejection stated above.

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*Allowable Subject Matter*

15. Claims 23, 32 and 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

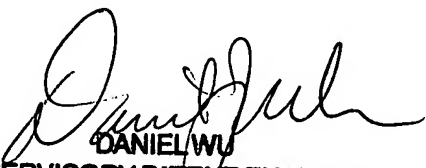
*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son M Tang whose telephone number is (571)272-2962. The examiner can normally be reached on 4/9 First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J Wu can be reached on (571)272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Son Tang

  
DANIEL WU  
SUPERVISORY PATENT EXAMINER  
02/07/05